UNITED STATES DISTRICT COURT

DISTRICT OF OREGON

PORTLAND DIVISION

NATIONAL STEEL CAR LIMITED,

Plaintiff,

v.

THE GREEBRIER COMPANIES, INC.,

Defendant.

Case No. 3:20-cv-01275-YY

OPINION AND ORDER

YOU, Magistrate Judge.

Plaintiff National Steel Car Limited, Inc. ("NSC") has brought suit against defendant The Greenbrier Companies, Inc. ("Greenbrier"), alleging infringement of U.S. Patent Nos. 7,434,519 ("'519 patent") and 7,878,125 ("'125 patent").[1] NSC claims Greenbrier "has manufactured, used, offered for sale, sold and/or imported into the United States railroad gondola cars covered by one or more claims of the Patents-In-Suit, including but not limited to gondola cars stenciled with AAR reporting marks CDEX 19005 and CDEX 19432." Compl. 3, ECF 1.

The parties dispute the construction of 11 terms. After considering the briefing and arguments of the parties, the court rules as set forth below.

[1] The '519 patent is dated October 14, 2008, and the '125 patent is dated February 1, 2011.

I. Relevant Law Regarding Claim Construction

"An infringement analysis entails two steps. The first step is determining the meaning and scope of the patent claims asserted to be infringed. The second step is comparing the properly construed claims to the device accused of infringing." *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed. Cir. 1995), *aff'd,* 517 U.S. 370 (1996). This first step, which is "commonly known as claim construction or interpretation," is decided as a "matter of law." *Id.*

The "bedrock principle" of patent law is that "the claims of a patent define the invention to which the patentee is entitled the right to exclude." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (citation omitted). "It is well-settled that, in interpreting an asserted claim, the court should look first to the intrinsic evidence of record, *i.e.,* the patent itself, including the claims, the specification and, if in evidence, the prosecution history." *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). "The claims, of course, do not stand alone" and "must be read in view of the specification, of which they are a part." *Phillips*, 415 F.3d at 1315–17 (internal quotations omitted).

"Consistent with the principle that the patented invention is defined by the claims, . . . limitations cannot be read into the claims from the specification or the prosecution history." *Burke, Inc. v. Bruno Indep. Living Aids, Inc.*, 183 F.3d 1334, 1340 (Fed. Cir. 1999); *Phillips*, 415 F.3d at 1320 (recognizing that reading a limitation from the written description into the claims is "one of the cardinal sins of patent law") (quoting *SciMed Life Sys., Inc. v. Advanced Cardiovascular Systems, Inc.*, 242 F.3d 1337, 1340 (Fed. Cir. 2001)). Thus, "an attribute of the preferred embodiment cannot be read into the claim as a limitation." *Burke*, 183 F.3d at 1341 (citing *Texas Instruments, Inc. v. United States Int'l Trade Comm'n,* 805 F.2d 1558, 1563 (Fed.

Cir. 1986) ("This court has cautioned against limiting the claimed invention to the preferred embodiments as specific examples in the specification.")); *Home Diagnostics, Inc. v. LifeScan, Inc.*, 381 F.3d 1352, 1357 (Fed. Cir. 2004) (holding a court errs "by placing too much emphasis on the specification's discussion of the preferred embodiments, rather than the meaning of the claims themselves" and "the applicant's choice to describe only a single embodiment does not mean that the patent clearly and unambiguously disavowed other embodiments"); *Laitram Corp. v. Cambridge Wire Cloth Co.,* 863 F.2d 855, 865 (Fed. Cir. 1988) ("References to a preferred embodiment, such as those often present in a specification, are not claim limitations."). Conversely, "it is unlikely that an inventor would define the invention in a way that excluded the preferred embodiment, or that persons of skill in this field would read the specification in such a way." *Hoechst v. Celanese Corp. v. BP Chemicals Ltd.*, 78 F.3d 1575, 1581 (Fed. Cir. 1996). Thus, "an interpretation [that excludes a preferred embodiment] is rarely, if ever, correct and would require highly persuasive evidentiary support." *Vitronics*, 90 F.3d at 1583.

The court "look[s] to the words of the claims themselves, both asserted and nonasserted, to define the scope of the patented invention." *Id*. at 1582. The words of a claim "are generally given their ordinary and customary meaning." *Id.* "[T]he ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application." *Phillips*, 415 F.3d at 1313; *see also Home Diagnostics*, 381 F.3d at 1358 (holding "customary meaning" refers to the "customary meaning in [the] art field"); *Ferguson Beauregard/Logic Controls v. Mega Sys., LLC,* 350 F.3d 1327, 1338 (Fed. Cir. 2003) (holding claim terms "are examined through the viewing glass of a person skilled in the art"). "That starting point is based on the well-settled understanding that inventors are typically persons skilled in the field of the

invention and that patents are addressed to and intended to be read by others of skill in the pertinent art." *Phillips*, 415 F.3d at 1313.

"Importantly, the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification." *Id.*; *see also Free Stream Media Corp. v. Alphonso Inc.*, 996 F.3d 1355, 1367 (Fed. Cir. 2021) ("Claim construction requires a determination as to how a person of ordinary skill in the art would understand a claim term 'in the context of the entire patent, including the specification.'"); *Uniloc 2017 LLC v. Apple Inc.*, 996 F.3d 1368, 1374 (Fed. Cir. 2021) ("we arrive at that construction by focusing on the prosecution history, the specification, and the context of the particular claims in which the term . . . appears"). "Such intrinsic evidence is the most significant source of the legally operative meaning of disputed claim language." *Vitronics*, 90 F.3d at 1582. "[T]he specification is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term." *Id.* "[I]t is always necessary to review the specification to determine whether the inventor has used any terms in a manner inconsistent with their ordinary meaning." *Id.* Thus, intrinsic evidence may outweigh dictionary definitions, analogies, and the purported plain meaning of a term in isolation. *Uniloc 2017*, 996 F.3d at 1374-75.

Courts "indulge a 'heavy presumption' that claim terms carry their full ordinary and customary meaning. . . ." *Omega Eng'g, Inc, v. Raytek Corp.*, 334 F.3d 1314, 1323 (Fed. Cir. 2003). "There are only two exceptions to this general rule: 1) when a patentee sets out a definition and acts as his own lexicographer, or 2) when the patentee disavows the full scope of a

claim term either in the specification or during prosecution." *Thorner v. Sony Computer Ent. Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012).

"To act as its own lexicographer, a patentee must 'clearly set forth a definition of the disputed claim term' other than its plain and ordinary meaning." *Id.* (quoting *CCS Fitness, Inc. v. Brunswick Corp.,* 288 F.3d 1359, 1366 (Fed. Cir. 2002)). "It is not enough for a patentee to simply disclose a single embodiment or use a word in the same manner in all embodiments, the patentee must 'clearly express an intent' to redefine the term." *Id.*

"Disavowal can be effectuated by language in the specification or the prosecution history." *Poly-Am., L.P. v. API Indus., Inc.*, 839 F.3d 1131, 1136 (Fed. Cir. 2016) (citing *Phillips*, 415 F.3d at 1316–17). "In either case, the standard for disavowal is exacting, requiring clear and unequivocal evidence that the claimed invention includes or does not include a particular feature." *Id.* (citations omitted). However, "[w]hile disavowal must be clear and unequivocal, it need not be explicit." *Id.* For example, where "the general summary or description of the invention describes a feature of the invention . . . and criticizes other products . . . that lack that same feature, this operates as a clear disavowal of these other products (and processes using these products)." *Astrazeneca AB, Aktiebolaget Hassle, KBI-E, Inc. v. Mut. Pharm. Co.*, 384 F.3d 1333, 1340 (Fed. Cir. 2004).

"In some cases, the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words." *Phillips*, 415 F.3d at 1314. In other cases, "the district court will need to look beyond the patent's intrinsic evidence and to consult extrinsic evidence in order to understand, for example, the background science or the meaning of a term in the relevant art

during the relevant time period." *Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 574 U.S. 318, 331 (2015). "[W]hile extrinsic evidence can shed useful light on the relevant art, . . . it is less significant than the intrinsic record in determining the legally operative meaning of claim language."[2] *Phillips*, 415 F.3d at 1317 (quotations marks and citations omitted). "Nonetheless, because extrinsic evidence can help educate the court regarding the field of the invention and can help the court determine what a person of ordinary skill in the art would understand claim terms to mean, it is permissible for the district court in its sound discretion to admit and use such evidence." *Id.* at 1319. However, "heavy reliance on the dictionary divorced from the intrinsic evidence risks transforming the meaning of the claim term to the artisan into the meaning of the term in the abstract, out of its particular context, which is the specification." *Id.* at 1321.

[2] This is for a number of reasons: (1) "extrinsic evidence by definition is not part of the patent and does not have the specification's virtue of being created at the time of patent prosecution for the purpose of explaining the patent's scope and meaning"; (2) "while claims are construed as they would be understood by a hypothetical person of skill in the art, extrinsic publications may not be written by or for skilled artisans and therefore may not reflect the understanding of a skilled artisan in the field of the patent"; (3) "extrinsic evidence consisting of expert reports and testimony is generated at the time of and for the purpose of litigation and thus can suffer from bias that is not present in intrinsic evidence"; (4) "there is a virtually unbounded universe of potential extrinsic evidence of some marginal relevance that could be brought to bear on any claim construction question," and "[i]n the course of litigation, each party will naturally choose the pieces of extrinsic evidence most favorable to its cause, leaving the court with the considerable task of filtering the useful extrinsic evidence from the fluff"; and (5) "undue reliance on extrinsic evidence poses the risk that it will be used to change the meaning of claims in derogation of the 'indisputable public records consisting of the claims, the specification and the prosecution history,' thereby undermining the public notice function of patents." *Phillips*, 415 F.3d at 1318–19 (citations omitted).

II. Analysis Regarding Contested Terms

Applying the aforementioned principles, the court examines each of the contested terms in turn.[3]

A. "beam"

NSC's Proposed Construction	Greenbrier's Proposed Construction
structural element that resists loads applied transversely to its axis (i.e., vertical loads) by carrying shear forces and bending moments	plain and ordinary meaning, no further construction needed at present[4]

The term "beam" appears in the claims of the '519 and '125 patents as part of the term "side beams." *See* ECF 1-1, at 64; ECF 1-2, at 66.[5] For example, claim 1 of the '519 patent provides:

> 1. A rail road gondola car comprising:
> a gondola car body carried by railroad car trucks for rolling motion along rail road tracks;
> said gondola car body having a longitudinal centerline;
> said gondola car body having a floor and a wall structure standing upwardly of said floor, said floor and said wall structure defining a lading receptacle;
> said floor including at least one floor panel;
> said gondola car body including a pair of lengthwise running side beams, said side beams defining portions of said wall structure;
> said side beams each having an upper margin. . . .

[3] The parties submitted thousands of written and demonstrative materials and the court held oral argument over two days. While the court appreciates the parties' helpful submissions and has considered all of their arguments, it is not essential or feasible to address all of the parties' arguments in this written decision.

[4] At the hearing Greenbrier said it would agree to the alternative definition "side structural assembly." However, this definition is not as accurate and complete as the one proffered by NSC.

[5] Because of the numerous filings and the fact that all parties are registered ECF users, this decision primarily relies upon ECF numbers to identify portions of the record.

ECF 1-1, at 64.

The background sections of both the '519 and '125 patents recognize that "[t]raditionally, gondola cars have tended to have two relatively deep side beams," and "[t]ypically, the side beams, the floor, and the end walls of the body of a gondola car define an open topped container, or receptacle, into which lading may be placed." ECF 1-1, at 45; ECF 1-2, at 46. "The side beams may often be the dominant vertical load bearing members[.]" ECF 1-1, at 45; ECF 1-2, at 46. Additionally, the invention summaries for both patents describe that the patented "gondola car body includes a pair of lengthwise running side beams, the side beams defining portions of the wall structure." ECF 1-1, at 45; ECF 1-2, at 46. The detailed descriptions also provide that "[t]he vertical lading load is reacted, primarily, in the side beam, which carries the vertical shear and the associated bending moment to the end sections of the car." ECF 1-1, at 55; ECF 1-2, at 56.

Thus, intrinsic evidence supports NSC's proposed construction. In fact, NSC's definition mirrors claim 1. According to NSC's definition, a side beam "defin[es] portions of the wall structure," i.e., it is a structural element; the side beam "may often be the dominant vertical load bearing members," i.e., it "resists loads applied transversely to its axis (i.e., vertical loads)"; and "the side beam . . . carries the vertical shear and the associated bending moment to the end sections of the car," i.e., it carries shear forces and bending moments.

The extrinsic evidence that NSC proffers also supports its definition. The textbook Structural Steel Design defines beams as "structures which carry loads transverse to their length. These members resist flexure (bending) and shear, and sometimes torsion, introduced by transverse loads." NSC Ex. 12, ECF 92-1, at 422. The ASTM Dictionary of Engineering Science & Technology similarly defines a beam as "a structural member intended primarily to

resist transverse forces, and subject to bending by these forces." NSC Ex. 13, ECF 92-1, at 432. Even Greenbrier's expert witness, Richard Dawson, P.E., testified that a beam is defined as a structure that supports loads that are applied transverse to its axis. NSC Ex. 22, at 91:8-10, ECF 100. When asked, "Is it true that a beam is a structural element that resists loads applied transversally to its axis by carrying shear forces and bending moments?," Dawson responded, "Yes, I would say that's true." *Id*. at 92:12-20.

Accordingly, NSC's proposed construction of the term "beam" shall apply.

B. "web"

NSC's Proposed Construction	Greenbrier's Proposed Construction
part of a beam that carries shear force	thin part of a beam extending from a top and/or bottom chord

At the hearing, NSC agreed that its proposed construction could be expanded to include the "vertical part of a beam that carries shear force." The patent and specification support such a construction. The background sections of both the '519 and '125 patents explain that the vertical web is part of the side beam: "The side beams themselves have tended to be deep beams having a top chord, a side sill, and a vertical web extending between the top chord and side sill." ECF 1-1, at 45; ECF 1-2, at 46. Consistent with NSC's proposed definition, Greenbrier's expert, Dawson, testified, "A web is part of the beam that carries shear forces." NSC Ex. 22, at 92:22-93:4, ECF 100. Also, the Northern District of Illinois adopted NSC's definition of web in a dispute involving the same patent. *National Steel Car Limited v. FreightCar America, Inc.*, No. 15-cv-3418, Opinion and Order (June 8, 2017) (construing "web" as "the part of a beam that carries shear force").

Greenbrier's proposed construction is less preferable for at least two reasons. First, Greenbrier's use of the words "thin part" is ambiguous. Second, the proposed construction

contemplates the existence of a bottom chord, but not all beams have a bottom chord. *See* NSC Opening Br. 9-10, ECF 92; ECF 101, at 65 (describing that the floor panel and web are "directly mated together"); ECF 1-1, at 45 ("In still another feature the rail road car is free of any other member defining a bottom flange of the side beam.").

C. "center sill"

NSC's Proposed Construction	Greenbrier's Proposed Construction
the center longitudinal structural member of a railcar underframe, which forms the backbone of the underframe, for transmitting longitudinal forces, including buffing shocks, from each coupler to the other coupler	center longitudinal structural member of the underframe that transmits longitudinal forces from one or both couplers

NSC argues the definition of "center sill" should include the language "from each coupler to the other coupler," as in a straight-through or through center sill. Greenbrier argues the term should include center sills that extend "from one or both couplers," which would include stub center sills.

Turning first to the intrinsic evidence, the patents contain figures showing elevation views of a gondola car and depicting a center sill that extends from coupler to coupler. ECF 1-1, at 4, 22, 35; ECF 1-2, at 5, 23, 36. Generally, "it is improper to read limitations from a preferred embodiment described in the specification—even if it is the only embodiment—into the claims absent a clear indication in the intrinsic record that the patentee intended the claims to be so limited." *Liebel–Flarsheim Co. v. Medrad, Inc.,* 358 F.3d 898, 913 (Fed. Cir. 2004). Here, however, nothing in the intrinsic evidence suggests that the center sill is one that does not extend from coupler to coupler. In fact, the detailed description of the invention describes a center sill with couplers at each end of the car: "Center sill (**50**) may have draft sills, or draft sill portions (**48**) at either end into which . . . releasable couplers (**54**) may be mounted." ECF 1-1, at 49; ECF 1-2, at 50. The specifications also refer to a "longitudinally running center sill," as well as

"longitudinally extending" side beams and cross-bearers that extend between the center sill and those side beams. *E.g.*, ECF 1-1, at 49. Further, the claims state that "[t]he center sill has a *pair* of spaced apart webs extending downwardly from . . . [the] floor panel, and said webs each have an upper margin mated to . . . [the] floor panel." *E.g.*, '519 Patent, Claims 13, 18, ECF 1-1, at 65. When read together, all of this indicates that the term center sill, as used in these patents, means the type that extends from coupler to coupler.

This comports with the extrinsic evidence that NSC has proffered. The Cyclopedia defines "center sill" as "the center longitudinal structural member of a car underframe, which forms the backbone of the underframe and transmits most of the buffing shocks *from one end of the car to the other*." NSC Ex. 15, ECF 92-1, at 449 (emphasis added). Greenbrier's expert, Dawson, confirms that NSC's definition is consistent with The Cyclopedia definition and that Greenbrier's proffered definition is inconsistent with this definition. NSC Ex. 22, at 132:19-133:21, ECF 100. Indeed, Greenbrier's definition more accurately fits the definition of a "draft sill" or "stub sill," terms that are defined separately in The Cyclopedia. *See* NSC, Ex. 15, ECF 92-1, at 451, 454 (defining "draft sill" as "That portion of the car center sill outboard of the body bolster containing the various components of the draft system," and "stub sill" as "A short longitudinal structural member of a car underframe designed to accommodate a coupler and draft gear, and to transmit coupler forces to the carbody on car designed with no through center sill").

Greenbrier cites other NSC patents in which the same inventor referred to a center sill as a "through center sill or stub sill." *See* Apel Decl., Ex. 13, ECF 96, at 47. However, "as extrinsic evidence, th[ese] unrelated patent[s] carr[y] much less persuasive weight than the specification" for the patents at issue. *Elan Microelectronics Corp. v. Pixcir Microelectronics Co. Ltd.*, 2:10-CV-00014-GMN, 2013 WL 2394358, at *19 (D. Nev. May 30, 2013); *see also*

Trustees of Columbia Univ. in City of New York v. Symantec Corp., 811 F.3d 1359, 1369 (Fed. Cir. 2016) (finding that similar terms that were found in four patents that were filed years apart with one common inventor do not need to have the same construction).

D. "side sill"

NSC's Proposed Construction	Greenbrier's Proposed Construction
Outside longitudinal member of the underframe	a dedicated lengthwise running member that acts as a bottom chord of the side beam

The background section of each patent observes that "[t]here has long been a desire in the rail road freight carrying industry generally to reduce the weight of freight cars," and "[i]n as much as bottom chords and side sills may tend to be quite heavy, a very substantial reduction in the size and weight of the side sill, or the substantially total elimination of a side sill may therefore hold out the prospect of a significant reduction in weight." ECF 1-1, at 45; ECF 1-2, at 46. The background describes the side sill as follows:

> *[A] side sill may be, or may include, a bottom chord of the deep side beam.* That is, the side sill may include a *lengthwise running member* that defines the lower bounding member of the side beam of the car. The lengthwise running member may run substantially the entire length of the side beam, and may function to define the lower flange of the side beam. *That lengthwise member is sometimes called a side sill, and sometimes called a bottom chord, but in either case may tend to function as the lower flange of the side beam.*

ECF 1-1, at 45; ECF 1-2, at 46 (emphasis added). The detailed description of the invention refers to an "embodiment" in which "the rail road car is *free of* any *separate and distinct* longitudinally running member, such as *a dedicated side sill* . . . ." ECF 1-1, at 51; ECF 1-2, at 52 (emphasis added); *see also* ECF 1-1, at 45 and ECF 1-2, at 46 ("[T]he car is free of side sills.").

Greenbrier's construction of the term "side sill" mirrors the intrinsic evidence, as illustrated by the italicized language above. Also, Greenbrier's expert, Dawson, attests that a

person having ordinary skill in the art would normally understand "side sill" to mean "a dedicated lengthwise running member that acts as a bottom chord of the side beam." Dawson Decl. ¶ 44, ECF 98.

NSC argues for a construction of "side sill" from The Cyclopedia, which defines it as "[t]he outside longitudinal members of the underframe." NSC Ex. 15, ECF 92-1, at 453. NSC also cites to the detailed description of the patents, which states: "Gondola cars have tended to have had underframes that included . . . side sills." ECF 1-1, at 49; ECF 1-2, at 50.

However, the fact that the patents describe a tendency, or inclination, does not mean that side sills are always part of the underframe. As Dawson testified, a person having ordinary skill in the art would understand that a "side sill" is "not necessarily a part of the underframe." Dawson Decl. ¶ 46, ECF 98. Even other NSC patents do not depict side sills as part of the underframe. *See* Greenbrier Resp. 24, ECF 93.

NSC argues that Greenbrier's use of the word "dedicated" is vague and undefined. However, the patent itself repeatedly refers to a "dedicated side sill." *E.g.*, ECF 1-1, at 51.

Therefore, Greenbrier's definition of "side sill" is adopted.

E. "floor panel" and "deck"

NSC's Proposed Construction	**Greenbrier's Proposed Construction**
A "deck" or "floor panel" can be one piece, or a plurality of pieces joined together, and may also include one or more extensions, which may be integral, or which can be separate	floor sheet, or abutting floor sheets joined together, that may have one or more integral or abutting floor extensions

The term "floor panel" is used in the'519 Patent, and the term "deck" is used in the '125 Patent. The parties agree that the terms "floor panel" and "deck" should be construed similarly.

Again, the analysis begins with the intrinsic evidence. Claim 15 of the '519 patent provides that the gondola car has a floor, "including at least one floor panel," and that the floor

panel and shear web member are "directly mated together." ECF 1-1, at 65. The invention summary similarly indicates that "[t]he floor includes at least one floor panel" and the "floor panel and the shear web member are directly mated together." *Id.* at 45; *see also id.* (observing the lower portion of the sheer web member is "mated directly to the floor panel").

Further, "[t]he majority of the floor is made from the floor panel," and "[t]he floor panel defines an upper flange of the centersill and the cross-bearers, and a bottom flange of the side beam." *Id.*; *see also id*. at 47 ("The web meets the floor panel at a juncture."); *id*. at 65 (Claim 11 stating "a majority of said floor is made from one said floor panel").

The detailed description of the invention also refers to "sheets" as follows:

> Flooring **32** may include a floor panel **44**, which may be made of a plurality of floor sheets joined together in an abutting fashion such as may yield a continuous lading containing surface, or, in one embodiment, may be made from a single, monolithic steel sheet **46**. Steel sheet **46** may be a single sheet having its profile cut from a monolithic sheet of stock by a plasma arc cutting device or cut at a steel mill. Use of a single sheet may simplify manufacture. Alternatively, floor panel **44** may not be entirely of one sheet, but may be predominantly of one sheet, such that, by area, more than half of floor panel **44** is cut from a single monolithic piece of stock. In another embodiment more than ¼ of floor panel **44** is cut from a single piece of monolithic stock. In another embodiment more than¾ of floor panel **44** may be cut from a single monolithic piece of stock, such as rolled sheet or plate. Floor panel **44** may be between ¼ and ¾ inch thick 35 steel plate, and may, in one embodiment be between $^{5}/_{16}$ and ½ inches thick, and, one embodiment may be about $^{7}/_{16}$" thick, and may provide a uniform common flange thickness above the center sill, cross-bearings, cross-ties and underneath the side beam web.

ECF 1-1, at 50.

Additionally, the floor panel may have extensions. ECF 1-1, at 51; ECF 1-2, at 52. "Extensions **140** may be formed by trimming the floor panel stock, such that extensions **140** are integral parts of floor panel **44**, rather than being joined after-the-fact as gussets welded in place." ECF 1-1, at 51; ECF 1-2, at 52. They also may be "fabricated piecemeal, as stub plates, and welded in planar abutment to . . . [a] floor sheet." ECF 1-1, at 59; ECF 1-2, at 60.

NSC disputes Greenbrier's use of the term "sheet" and argues that, per Dawson's testimony, a floor panel or deck could even be comprised of wooden planks. NSC Reply 23, ECF 99; *see* NSC Ex. 22, at 193:15-194:6, ECF 100; *see also* ECF 1-1, at 49 ("Some gondola cars had floors of wooden timbers, or planks[.]"). However, Greenbrier's use of the word "sheet" is consistent with the patent specifications, which use the term "sheet" and "sheets," as described above. Moreover, the specifications provide that "[g]enerally speaking, car **520** may be of all steel, or predominantly steel construction, although in some embodiments other materials such as aluminum or engineered polymers or composites may be used for some or a predominant portion of the containment receptacle structure." ECF 1-1, at 60. Also, claim 15 describes that the "web of said first side wall is welded directly to said deck." *Id.* at 67. To "weld" means "to unite (metallic parts) by heating and allowing the metals to flow together or by hammering or compressing with or without previous heating." *Weld*, *Merriam-Webster*, https://www.merriam-webster.com/dictionary/weld (last visited July 5, 2021). Thus, a person of ordinary skill in the art would not conclude that a "floor panel" could be comprised of wooden planks in this context.

NSC also argues that the term "deck" cannot possibly be construed to mean a steel sheet. But, as noted, the specifications say that a "car **520** may be of all steel, or predominantly steel construction." ECF 1-1, at 60. Moreover, the '125 patent speaks of a "monolithic *steel sheet* . . . mated directly with the decking of the car, namely the floor panel." ECF 1-2, at 51 (emphasis added).

Finally, NSC takes issue with Greenbrier's use of the word "abutting." As NSC observes, the patents' detailed description only states that the floor panel "*may* be made" of abutting floor sheets. ECF 1-1, at 60; ECF 1-2, at 57. Also, extensions may be created with a

gusset, which is "a plate used to connect two or more members or to reinforce a joint." *See* NSC Ex. 13, at 433, ECF 92-1. Thus, Greenbrier's construction is adopted, but without the use of the word "abutting."

F. "there being web continuity between said first web extension and said upstanding web"

NSC's Proposed Construction	Greenbrier's Proposed Construction
the first web extension and the upstanding web are substantially co-planar, for transmitting shear forces in a substantially straight line	the first web extension and the upstanding web are substantially co-planar

This phrase is found only in claim 1 of the '125 patent. *See* ECF 1-2, at 66. The web extension (146) and upstanding web (114) are illustrated in figures 2a, 3b, 4b, 4i, and 5a. *Id.* at 5, 7, 9, 16, 17. The parties disagree whether the definition of this phrase should include the language "for transmitting shear forces in a substantially straight line."

In support, NSC relies on the detailed description, which provides:

> Side web extension member **146** may be mounted to the underside of floor panel **44,** and may be mounted such that the mating of the upper margin of extension member **146** lies in general alignment with, and may lie directly opposite to, the mating of side web member **114** with floor panel **44,** such that a tensile load in side web **114** may, in whole or in part, be carried into web extension **146** substantially without transverse travel through floor panel **44** such as might otherwise tend to give rise to a bending moment in floor panel **44** between the line of action of web **114** pulling up on floor panel **44** and the line of action of web extension **146** pulling down on floor panel **44.** Expressed alternately, it may be that web **114** and extension **146** are mated to plate **44** in a manner tending to discourage unduly eccentric transmission of stress from one to the other. In that regard, extension member **146** may be substantially co-planar with side web member **114.**

ECF 1-2, at 49. NSC also relies on testimony by Dawson, who responded affirmatively to the question, "Is it fair to say that the purpose of that plate 146 is to transmit both shear and tension forces in substantially a straight line?" NSC Ex. 22, at 213:11-19, ECF 100.

However, as Greenbrier correctly observes, NSC's definition refers to only shear forces. But both the specification and Dawson's testimony refer to tensile or tension forces. Thus, while some additional definition may be appropriate, NSC's construction, as it is proposed, is incomplete.

G. "at least half of said deck is formed from a single monolithic piece of steel sheet"

NSC's Proposed Construction	Greenbrier's Proposed Construction
at least half the deck is a single piece of steel sheet of substantially uniform thickness	at least half of the deck is a single steel sheet without intermediate joints

This phrase is found in claims 15, 16, and 18 of the '125 Patent. NSC proposes the language "substantially uniform thickness" to explain the term "monolithic." NSC's construction is supported by The ASTM Dictionary of Engineering Science & Technology, which defines "monolithic" as "a material of *uniform* composition applied *as a continuous surface or structure*," NSC Ex. 13, ECF 92-1, at 434 (emphasis added), and The American Heritage College Dictionary, which defines "monolithic" as "constituting a monolith," "massive, solid, *uniform*," and "constituting or acting as a single, often rigid *uniform* whole." NSC Ex. 17, ECF 92-1, at 476 (emphasis added).

Greenbrier points to language in patent '519 to argue that monolithic is defined as "formed from a single sheet of stock without intermediate joints." There, the word "monolithic" is used not in the context of the floor panel but in the context of the lower portion of the web: "It may be that lower portion **126** of web **114** . . . may be monolithic (i.e., formed from a single sheet of stock without intermediate joints)." *E.g.*, ECF 1-1, at 50. But more importantly, Greenbrier's proposal fails to give separate meaning to the term "monolithic." Because a single sheet is a sheet without intermediate joints, the term monolithic must mean more than that or it

would be redundant. *See* NSC Ex. 22 (Dawson Dep.), at 215:22-216:5, ECF 100. Accordingly, NSC's construction is adopted.

H. "extending upwardly of"

NSC's Proposed Construction	Greenbrier's Proposed Construction
rising in an upward direction of	extending from and rising in an upward direction of

This phrase is used in claim 1 of the '125 patent in the context of the "upstanding web of said first side beam extending upwardly of said deck." ECF 1-2, at 66. The intrinsic evidence supports Greenbrier's proposal that the construction should include the language "extending from."

In the invention summary, the words "extending from" are used to describe the shear web member (114) in relation to the floor panel (44):

> In still another feature, the shear web member is a monolithic member *extending from* the floor panel to the upper margin. In yet still another feature, the side beam includes a top chord member distant from the floor panel, and the shear web member is a monolithic member *extending from* the floor panel to the top chord.

ECF 1-2, at 46 (emphasis added); *see also id.* at 52 (designating web member as number 114 and floor panel as number 44). Moreover, diagrams that depict the first side beam (78), upstanding web/web member (114), and floor panel (44) show the upstanding web extending from the floor panel. *See* ECF 1-2, at 8, 10 (figures 3c, 4b, and 4c).

Again, "the proper judicial construction of a claim and its terms if the viewpoint of a person of ordinary skill in the field of the invention; the court must determine how such a person would understand the claim in the context of the particular technology and the description in the specification." *On Demand Mach. Corp. v. Ingram Industries, Inc.*, 442 F.3d 1331, 1337 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1313). Here, a person of ordinary skill in the field of the

invention would understand that the term "extending upwardly of" means extending from, as this is the language used in the invention summary and what the figures show.

NSC points to a decision by the Patent Trial and Appeal Board in which it recognized in a footnote that "the broader 'extending' language 'does not convey the same positional aspect that arises in connection with the meaning of 'standing.'" NSC Opening Br. 26, ECF 92. However, as Greenbrier observes, in that case, the Patent Trial and Appeal Board did not construe the particular phrase "extending upwardly of" in the context of this patent.

I. "extending/extends predominantly downwardly of"

NSC's Proposed Construction	Greenbrier's Proposed Construction
plain and ordinary meaning, no further construction needed at present[6]	extending/extends from and in a predominantly downward direction of

This phrase is used in claims 1, 15, and 22 of the '519 patent (in the context of the side beam's shear web member "extending predominantly downwardly of" the beam's upper margin); in claim 1 of the '125 patent (in the context of the side beam web extension "extending predominantly downwardly of" the deck); and in claim 15 of the '125 patent (in the context of the underframe cross-member's web "extends predominantly downwardly of" the deck).

Greenbrier's proposed language "extending/extends from" is supported by the intrinsic evidence. As Greenbrier observes, "in every depiction and description, the shear web member . . . is disclosed as extending downwardly *from* the upper margin . . . of the side beam." Greenbrier Resp. 38, ECF 93 (citing '519 Patent, Figures 1, 2, 3b, 3c, 4e, 4g, 5a, 5b, 7a, 7b, 8a, 8b, 8c, 9a, 9b, 10a, 10b, 10j (depicting shear web (114/414/614) extending from top chord

[6] At oral argument, NSC suggested that if this phrased needed to be construed, it should be defined as "extending/extends in a predominantly downward direction of."

(110/410/610/611)) (emphasis in original). In this context, a person of ordinary skill in the art would construe this term as Greenbrier has proposed.

J. "directly connected"

NSC's Proposed Construction	Greenbrier's Proposed Construction
connected without an intervening member or structure	joined or fitted together, without an intervening member or structure synonymous with "directly mated"

The parties agree that "mated" means "joined or fitted together" and that "directly mated" and "mated directly" mean "joined or fitted together, without an intervening member or structure." *See* NSC Opening Br. 4, ECF 92. They dispute whether "directly connected" is synonymous with "directly mated." NSC argues "[t]here is no reason to artificially limit the plain and ordinary meaning of the word 'connected' to be synonymous with 'mated.'" NSC Opening Br. 28, ECF 92.

In construing the term "directly connected," the court again looks at the intrinsic evidence, including how the term is used in the specifications, as well as how the terms "connected directly," "directly mated," and "mated directly" are used.

1. Directly Connected: '125 Patent

The term "directly connected" is found in Claim 18 of the '125 patent, which states:

> said first side wall has a first side wall web running along said first laterally outboard margin, said first side wall web being directly connected to said deck;
> said second side wall has a second side wall web running along said second laterally outboard margin, said second side wall web being directly connected to said deck whereby said deck defines a bottom flange of said first and second side walls;
> said first cross-member having a laterally running web, said laterally running web being directly connected to said deck, said laterally running web extending downwardly of said deck, whereby said deck defines an upper

flange of said first cross-member[.]

ECF 1-2, at 67. The first and second side walls are designated with numbers 36 and 38 in the '125 patent. In figures 3b, 3c, and 4b, these side walls are depicted as adjoining the deck, which is numbered 44.

2. Connected Directly: '519 Patent

The '519 patent uses the term "connected directly" in the detailed description in conjunction with welding:

> Alternatively, as shown in the embodiment of FIGS. **5*a***, **5*b***, and **5*c***, each cross-bearer **72** may include a pair of first and second, spaced apart upstanding webs, **84**, **86**, and may include a bottom flange member **89**. In either case, web **85**, or webs **84** and **86** may abut floor panel **44** directly, and be connected directly thereto by such means as welding.

ECF 1-1, at 49.

3. Directly Mated

a. '519 Patent

The term "directly mated" is used in the patent '519 as follows:

The summary of invention states, "The floor panel and the shear web member are directly mated together." ECF 1-1, at 45.

Claim 1 states "said at least one floor panel and said lower margin of said shear web member being directly mated together." *Id*. at 64.

Claims 15, 21, 22, 26, and 27 state "said at least one floor panel and said shear web member being directly mated together." *Id.* at 65.

b. '125 Patent

The'125 patent also uses the term "directly mated" in the summary of invention: "The floor panel and the shear web member are directly mated together." ECF 1-2, at 46.

4. Mated Directly

a. '519 Patent

The term "mated directly" is used in the '519 patent as follows:

The summary of invention states:

> In another feature the web member includes an upper portion and a lower portion, the upper portion having a lower margin, the lower portion being attached along the lower margin to the upper portion, and the lower portion is mated directly to the floor panel.
> . . .
> In again another feature, the gondola car includes cross-bearers, and the cross-bearers have webs, the webs having upper margins mated directly to the floor panel.
> . . .
> The gondola car includes at least one cross-bearer, the cross-bearer has at least one web, and the web of the cross-bearer has an upper margin mated directly to the floor panel.

ECF 1-1, at 45.

The detailed description states:

> That monolithic steel sheet may have an upper margin **112** mated with top chord member **110,** typically at a welded lap joint; and a lower margin **128** mated directly with the decking of the car, namely floor panel **44.**

ECF 1-1, at 50.

> That monolithic steel sheet may have an upper margin **612** mated with top chord number **610,** typically at a welded lap joint; and a lower margin **628** mated directly with the decking of the car, namely floor panel **544** in the manner described above.

ECF 1-1, at 62.

Claim 3 states "said lower portion being mated directly to said at least one floor panel." ECF 1-1, at 65.

Claim 14 states:

> The rail road gondola car of claim **1** wherein said gondola car includes cross-bearers, and said cross-bearers have webs, said webs having upper margins mated directly to said at least one floor panel.

Id.

Claim 19 states:

> The rail road gondola car of claim **15** wherein said gondola car includes cross-bearers, and said cross-bearers have webs, said webs having upper margins mated directly to said at least one floor panel.

ECF 1-1, at 65.

b. '125 Patent

The '125 Patent uses the term "mated directly" as follows:

The summary of invention states:

> In another feature the web member includes an upper portion and a lower portion, the upper portion having a lower margin, the lower portion being attached along the lower margin to the upper portion, and the lower portion is mated directly to the floor panel.
> . . .
> In again another feature, the gondola car includes cross-bearers, and the cross-bearers have webs, the webs having upper margins mated directly to the floor panel.
> . . .
> The gondola car includes at least one cross-bearer, the cross-bearer has at least one web, and the web of the cross-bearer has an upper margin mated directly to the floor panel.

ECF 1-1, at 46.

The detailed description states:

> That monolithic steel sheet may have an upper margin **112** mated with top chord member **110,** typically at a welded lap joint; and a lower margin **128** mated directly with the decking of the car, namely floor panel **44.**

ECF 1-1, at 51.

> That monolithic steel sheet may have an upper margin **612** mated with top chord number **610**, typically at a welded lap joint; and a lower margin **628**

> mated directly with the decking of the car, namely floor panel **544** in the manner described above.

ECF 1-1, at 63.

5. Discussion

Considering the intrinsic evidence described above, including the diagrams depicting images of various parts "connected" and "mated," there is no discernable difference between these terms. Therefore, Greenbrier's construction is adopted.

K. "welded directly"

NSC's Proposed Construction	Greenbrier's Proposed Construction
welded without an intervening member or structure	welded together, without an intervening member or structure

NSC objects to Greenbrier's "unnecessary and gratuitous addition of the word 'together.'" As discussed above, to "weld" means "to unite (metallic parts) by heating and allowing the metals to flow together or by hammering or compressing with or without previous heating." *Weld*, *Merriam-Webster*, https://www.merriam-webster.com/dictionary/weld (last visited July 5, 2021). It is unnecessary to include the word "together" in this construction. Therefore, NSC's proposed construction is adopted.

IT IS SO ORDERED.

DATED July 9, 2021.

/s/ Youlee Yim You
Youlee Yim You
United States Magistrate Judge